****** CONFIDENTIAL ******
******PRE-DECISIONAL DOCUMENT ******
****** SUMMARY SCORESHEET ******
****** FOR COMPUTING PROJECTED HRS SCORE ******

****** Do Not Cite or Quote ******

Site Name: Cement Creek

Region: 8

City, County, State: Silverton, San Juan County CO

Evaluator: START

EPA ID#:

Date: 5/4/2011

Lat/Long:

T/R/S:

Congressional District:

This Scoresheet is for: SI

Scenario Name: October 2010 Samples

Description: Main Trunk Stream, not including or excluding specific side streams.

	S pathway	S^2 pathway
Ground Water Migration Pathway Score (S_{gw})		
Surface Water Migration Pathway Score (S_{sw})	39.86	1588.8196
Soil Exposure Pathway Score (S_s)	0.01	0.0001
Air Migration Score (S_a)		
$S^2_{gw} + S^2_{sw} + S^2_s + S^2_a$		1588.8197
$(S^2_{gw} + S^2_{sw} + S^2_s + S^2_a)/4$		397.204925
$\sqrt{(S^2_{gw} + S^2_{sw} + S^2_s + S^2_a)/4}$		19.93

* Pathways not assigned a score (explain):

TABLE 4-1 --SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORESHEET

Factor categories and factors	Maximum Value	Value Assigned	
Watershed Evaluated: Cement Creek-main stream			
Drinking Water Threat			
Likelihood of Release:			
1. Observed Release	550	550	
2. Potential to Release by Overland Flow:			
2a. Containment	10	10	
2b. Runoff	10	1	
2c. Distance to Surface Water	5	25	
2d. Potential to Release by Overland Flow [lines 2a(2b + 2c)]	35	260	
3.Potential to Release by Flood:			
3a. Containment (Flood)	10	10	
3b. Flood Frequency	50	50	
3c. Potential to Release by Flood (lines 3a x 3b)	500	500	
4. Potential to Release (lines 2d + 3c, subject to a maximum of 500)	500	500	
5. Likelihood of Release (higher of lines 1 and 4)	550		550
Waste Characteristics:			
6. Toxicity/Persistence	(a)	10000	
7. Hazardous Waste Quantity	(a)	1	
8. Waste Characteristics	100		10
Targets:			
9. Nearest Intake	50	0	
10. Population:			
10a. Level I Concentrations	(b)		
10b. Level II Concentrations	(b)		
10c. Potential Contamination	(b)	1	
10d. Population (lines 10a + 10b + 10c)	(b)	1	
11. Resources	5		
12. Targets (lines 9 + 10d + 11)	(b)		1
Drinking Water Threat Score:			
13. Drinking Water Threat Score [(lines 5x8x12)/82,500, subject to a max of 100]	100		0.07
Human Food Chain Threat			
Likelihood of Release:			
14. Likelihood of Release (same value as line 5)	550		550
Waste Characteristics:			
15. Toxicity/Persistence/Bioaccumulation	(a)	500000000	
16. Hazardous Waste Quantity	(a)	1	
17. Waste Characteristics	1000		100
Targets:			
18. Food Chain Individual	50	0	
19. Population			
19a. Level I Concentration	(b)		
19b. Level II Concentration	(b)		
19c. Potential Human Food Chain Contamination	(b)	10	
19d. Population (lines 19a + 19b + 19c)	(b)	10	
20. Targets (lines 18 + 19d)	(b)		10
Human Food Chain Threat Score:			
21. Human Food Chain Threat Score [(lines 14x17x20)/82500, subject to max of 100]	100		6.67
Environmental Threat			
Likelihood of Release:			
22. Likelihood of Release (same value as line 5)	550		550
Waste Characteristics:			

23. Ecosystem Toxicity/Persistence/Bioaccumulation	(a)	500000	
24. Hazardous Waste Quantity	(a)	1	
25. Waste Characteristics	1000		18
Targets:			
26. Sensitive Environments			
26a. Level I Concentrations	(b)	250	
26b. Level II Concentrations	(b)	25	
26c. Potential Contamination	(b)	1	
26d. Sensitive Environments (lines 26a + 26b + 26c)	(b)	276	
27. Targets (value from line 26d)	(b)		276
Environmental Threat Score:			
28. Environmental Threat Score [(lines 22x25x27)/82,500 subject to a max of 60]	60		33.12
Surface Water Overland/Flood Migration Component Score for a Watershed			
29. Watershed Score[c] (lines 13+21+28, subject to a max of 100}	100		39.86
Surface Water Overland/Flood Migration Component Score			
30. Component Score (S_{sw})[c] (highest score from line 29 for all watersheds evaluated)	100		39.86

[a] Maximum value applies to waste characteristics category
[b] Maximum value not applicable
[c] Do not round to nearest integer

TABLE 5-1 --SOIL EXPOSURE PATHWAY SCORESHEET

Factor categories and factors	Maximum Value	Value Assigned	
Likelihood of Exposure:			
1. Likelihood of Exposure	550		0
Waste Characteristics:			
2. Toxicity	(a)	10000	
3. Hazardous Waste Quantity	(a)	1	
4. Waste Characteristics	100		10
Targets:			
5. Resident Individual	50	45	
6. Resident Population:			
6a. Level I Concentrations	(b)		
6b. Level II Concentrations	(b)		
6c. Population (lines 6a + 6b)	(b)		
7. Workers	15	5	
8. Resources	5		
9. Terrestrial Sensitive Environments	(c)		
10. Targets (lines 5 + 6c + 7 + 8 + 9)	(b)		50
Resident Population Threat Score			
11. Resident Population Threat Score (lines 1 x 4 x 10)	(b)		0
Nearby Population Threat			
Likelihood of Exposure:			
12. Attractiveness/Accessibility	100	50	
13. Area of Contamination	100	5	
14. Likelihood of Exposure	500		5
Waste Characteristics:			
15. Toxicity	(a)	10000	
16. Hazardous Waste Quantity	(a)	1	
17. Waste Characteristics	100		10
Targets:			
18. Nearby Individual	1	0	
19. Population Within 1 Mile	(b)	10	
20. Targets (lines 18 + 19)	(b)		10
Nearby Population Threat Score			
21. Nearby Population Threat (lines 14 x 17 x 20)	(b)		500
Soil Exposure Pathway Score:			
22. Pathway Score[d] (S_s), [lines (11+21)/82,500, subject to max of 100]	100		0.01

[a] Maximum value applies to waste characteristics category
[b] Maximum value not applicable
[c] No specific maximum value applies to factor. However, pathway score based solely on terrestrial sensitive environments is limited to a maximum of 60
[d] Do not round to nearest integer

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3a. Containment (Flood)	10	10	
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3c. Potential to Release by Flood (lines 3a x 3b)	500	500	
4. Potential to Release (lines 2d + 3c, subject to a maximum of 500)	500	500	
5. Likelihood of Release (higher of lines 1 and 4)	550		550
Waste Characteristics:			
6. Toxicity/Persistence	(a)	10000	
7. Hazardous Waste Quantity	(a)	1	
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Targets:			
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10. Population:			
10a. Level I Concentrations	(b)		
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Likelihood of Release:			
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Waste Characteristics:			
15. Toxicity/Persistence/Bioaccumulation	(a)	500000000	
16. Hazardous Waste Quantity	(a)	1	
17. Waste Characteristics	1000		100
Targets:			
18. Food Chain Individual	50	0	
19. Population			
19a. Level I Concentration	(b)		
19b. Level II Concentration	(b)		
19c. Potential Human Food Chain Contamination	(b)	10	
19d. Population (lines 19a + 19b + 19c)	(b)	10	
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Human Food Chain Threat Score:			
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Environmental Threat			
Likelihood of Release:			
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Waste Characteristics:			

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TABLE 5-1 --SOIL EXPOSURE PATHWAY SCORESHEET

Factor categories and factors	Maximum Value	Value Assigned	
Likelihood of Exposure:			
1. Likelihood of Exposure	550		0
Waste Characteristics:			
2. Toxicity	(a)	10000	
3. Hazardous Waste Quantity	(a)	1	
4. Waste Characteristics	100		10
Targets:			
5. Resident Individual	50	45	
6. Resident Population:			
6a. Level I Concentrations	(b)		
6b. Level II Concentrations	(b)		
6c. Population (lines 6a + 6b)	(b)		
7. Workers	15	5	
8. Resources	5		
9. Terrestrial Sensitive Environments	(c)		
10. Targets (lines 5 + 6c + 7 + 8 + 9)	(b)		50
Resident Population Threat Score			
11. Resident Population Threat Score (lines 1 x 4 x 10)	(b)		0
Nearby Population Threat			
Likelihood of Exposure:			
12. Attractiveness/Accessibility	100	50	
13. Area of Contamination	100	5	
14. Likelihood of Exposure	500		5
Waste Characteristics:			
15. Toxicity	(a)	10000	
16. Hazardous Waste Quantity	(a)	1	
17. Waste Characteristics	100		10
Targets:			
18. Nearby Individual	1	0	
19. Population Within 1 Mile	(b)	10	
20. Targets (lines 18 + 19)	(b)		10
Nearby Population Threat Score			
21. Nearby Population Threat (lines 14 x 17 x 20)	(b)		500
Soil Exposure Pathway Score:			
22. Pathway Score[d] (S_s), [lines (11+21)/82,500, subject to max of 100]	100		0.01

[a] Maximum value applies to waste characteristics category
[b] Maximum value not applicable
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Surface Water Environmental score driven by cadmium and silver for .1 to .25 miles of wetlands at Level I and .1 mile of wetlands at Level II. Identifying sensitive environments and wetlands along Cement Creek would increase this score.

Surface Water Human Food Chain driven by manganese, cadmium, arsenic, and barium with the potential that someone might find a fish to eat in Cement Creek.

Surface Water Drinking Water driven by arsenic, barium, cadmium, and manganese.

Upper Animas River/Surface water samples

Level I concentrations

UASW030 – BACKGROUND

As	2.5 U
Cd	3.09 D
Mn	120
Zn	24,900

UASW059

As	26.9 D
Cd	105 D
Mn	8,740 D

UASW018

Cd	19.2 D

UASW014

Cd	25.8 D
Mn	14,900

UASW013

Cd	22.0 D
Mn	12,800

UASW009

Cd	29.1 D
Mn	14,800

UASW008

Cd	28.7 D
Mn	14,800

UASW006

Cd	30.3 D
Mn	18,500

UASW058

Mn	9,150

UASW056

Mn	8,750

UASW050

Mn	6,240

UASW056

Mn	8,749

UASW047

Mn	5,860

UASW046

Mn	5,780

UASW042

Mn	5,900

UASW041

	5,710

UASW039

Mn	5,610

UASW037

Mn	5,280

Upper Animas River/Sediment samples / Level I concentrations

UASE030 – BACKGROUND

As	31.5 J+
Ba	94.2 J+
Ag	1.2 J
Zn	1,500 J

UASE059

As	556.9
Ag	13.2 J

UASE023

Ag	11.8 J

UASE014

Ag	8.5 J

UASE006

Ag	12.1 J

UASE049

Zn	4,910

UASE046

As	115 J

UASE039

As	422 J

UASE036

Ba	342 J

UAS035

Ba	424 J

UASSE01

Ba	559 J